

Claims.

1. A process for making a toothbrush head, comprising;
providing a plastic material head part having a first surface in which bristles
5 are mounted or are to be mounted, and having an opposite surface on which an
elastomer material part is to be formed, the first and second surfaces being distanced
by a side surface,
enclosing the head part in an injection mould cavity formed by combination of
a first and second part mould cavity formed in respective first and second mould
10 blocks which mate at a primary split line, the injection mould cavity defining at least
part of the shape of the elastomer part to be formed,
introducing a thermoplastic elastomer material into the injection mould cavity
to thereby form the elastomer material part,
characterised in that:-
15 the mould block is provided with means to allow air to vent from the injection
mould cavity during introduction of the thermoplastic elastomer material into the
injection mould cavity other than via the primary split line.
2. Process according to claim 1 characterised in that the first part mould cavity
20 encloses at least part of the first surface and the second part mould cavity encloses at
least part of the second surface and defines at least part of the elastomer part to be
formed, and the second mould block is provided with means to allow air to vent from
the injection mould cavity during introduction of the thermoplastic elastomer material
into the injection mould cavity other than via the primary split line.
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3. Process according to claim 1 or 2 characterised by a second mould block
which comprises at least two part second mould blocks which mate at a second mould
block split line which extends in the toothbrush longitudinal direction, said second
mould block split line comprising the means to allow air to vent from the injection
30 mould cavity during introduction of the thermoplastic elastomer material into the
injection mould cavity other than via the primary split line.

4. Process according to claim 1 characterised in that an elastomer material part comprising plural ribs each having an elongate direction across the longitudinal direction, and extending from the second surface in a height direction perpendicular to a plane between the first and second surfaces, is formed on the second surface of the head by a process comprising:-

enclosing the head part in an injection mould cavity formed by combination of a first and second part mould cavity formed in respective first and second mould blocks which mate at a primary split line, the first part mould cavity enclosing at least part of the first surface, and the second part mould cavity enclosing at least part of the second surface and defining at least part of the elastomer part to be formed,

the second part mould cavity comprising one or more concavity defining the shape of the plural ribs, the second mould block comprising at least two second part mould blocks which mate at a second mould block split line which extends in the toothbrush longitudinal direction, preferably in a direction perpendicular to a plane between the first and second surfaces,

and introducing a thermoplastic elastomer material into the second mould cavity to thereby form the elastomer material part.

5. Apparatus for making a toothbrush head, comprising:-

an injection mould which comprises first and second mould blocks which include a respective first and second part mould cavity and which mate at a primary split line, so that the part mould cavities combine to form a mould cavity suitable to enclose a plastic material head part having a first surface in which bristles are mounted or are to be mounted, and having an opposite surface on which an elastomer material part is to be formed, the first and second surfaces being distanced by a side surface, the mould cavity defining at least part of the elastomer part to be formed, the injection mould being adapted for introduction of a thermoplastic elastomer material into the second mould cavity to thereby form the elastomer material part,

characterised in that:-

the mould block is provided with means to allow air to vent from the mould cavity during introduction of the thermoplastic elastomer material into the mould cavity other than via the primary split line.

6. Apparatus according to claim 5 characterised in that the first part mould cavity is adapted to enclose at least part of the first surface and the second part mould cavity is adapted to enclose at least part of the second surface and to define at least part of
5 the elastomer part to be formed, and the second mould block is provided with means to allow air to vent from the injection mould cavity during introduction of the thermoplastic elastomer material into the injection mould cavity other than via the primary split line.

10 7. Apparatus according to claim 5 or 6 characterised by a second mould block which comprises at least two part second mould blocks which mate at a second mould block split line which extends in the toothbrush longitudinal direction said second mould block split line comprising the means to allow air to vent from the injection mould cavity during introduction of the thermoplastic elastomer material into the
15 injection mould cavity other than via the primary split line.

8. Apparatus according to claim 5 characterised in that the first and second mould blocks mate at a primary split line which, when the head part is enclosed in the mould cavity, intersects the head part at the edge surface, between the first and second
20 surfaces,

the second part mould cavity comprises one or more concavity defining the shape of an elastomer part which comprises plural ribs having an elongate direction across the longitudinal direction, and extending from the second surface in a height direction perpendicular to a plane between the first and second surfaces,

25 the second mould block comprises at least two part second mould blocks which mate at a second mould block split line which extends in the toothbrush longitudinal direction.

9. Process for making a toothbrush head, comprising;
30 providing a plastic material head part having a first surface in which bristles are mounted or are to be mounted, and having an opposite surface on which an

elastomer material part is to be formed, the first and second surfaces being distanced by a side surface,

enclosing the head part in an injection mould cavity defining at least part of an elastomer part, particularly an elastomer material part which comprises one or more
5 rib having an elongate direction across the longitudinal direction, and extending from the second surface in a height direction perpendicular to a plane between the first and second surfaces to be formed therein,

introducing a thermoplastic elastomer material into the injection mould cavity to thereby form the elastomer material part,

10 characterised in that the fluid thermoplastic elastomer material is injected into the injection mould cavity at a temperature of 240 - 260°C.

10. Process for making a toothbrush head, comprising;

providing a plastic material head part having a first surface in which bristles
15 are mounted or are to be mounted, and having an opposite surface on which an elastomer material part is to be formed, the first and second surfaces being distanced by a side surface,

enclosing the head part in an injection mould cavity defining at least part of an elastomer part, particularly an elastomer material part which comprises one or more
20 rib having an elongate direction across the longitudinal direction, and extending from the second surface in a height direction perpendicular to a plane between the first and second surfaces to be formed therein,

introducing a thermoplastic elastomer material into the second mould cavity to thereby form the elastomer material part,

25 characterised in that subsequent to the injection of the thermoplastic elastomer material into the injection mould cavity the head part with the so-formed elastomer material part is ejected from the mould cavity at a temperature above 20°C.

11. Process according to claim 10 characterised in that subsequent to the injection
30 of the thermoplastic elastomer material into the injection mould cavity the head part with the so-formed elastomer material part is ejected from the mould cavity at a temperature between 30 - 40°C.